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ABSTRACT

The effects of two different approaches to training community nurses in patient self-care were evaluated. In an intensive workshop, 36 nurses were trained, and 19 of them received further personal guidance 11 times during a 6-month period. Their performance was assessed before the educational intervention, after the workshop, and after the clinical guidance. The "Workshop Group" was compared to the "Guidance Group" and a matched control group. The assessment of nursing performance was done by trained observers during the nurses' regular work hours, using an instrument titled "Observational Checklist for Patient Encounter." This instrument provides a wide range of potential uses for quality assurance and research. The development and validation of the instrument are described. The results indicate a low level of performance before the intervention and a dramatic rise in performance after the training. The clinical guidance was more effective than the workshop alone. The distribution of nurses' activities among the various domains of nursing, determined through the checklist, and the parameters of patients' lifestyles within these domains are described before and after the training. Practical conclusions are drawn for community nursing. (Contains 6 tables, 4 figures, and 32 references.) (SLD)

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ED 427 021

Measuring the Effect of Different Training Programs on Nurses' Proficiency: Introducing a New Measurement Instrument

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Abstract

The effect of community nurse training for self-care approach is evaluated. 36 nurses were trained in an intensive workshop, and 19 of them were further personally guided 11 times during a 6 months period. Their performance was assessed before the educational intervention, after the workshop, and again after the clinical guidance. The "Workshop Group" was compared to the "Guidance Group" and to a matched control group. The assessment of nursing performance was done by trained observers during the nurses regular work hours, using an instrument entitled "Observational Checklist for Patient Encounter". This instrument provides a wide range of potential uses for quality assurance and research. The development and validation of the instrument are described.

The results indicate a low level of performance before the intervention, which rose dramatically after the training. The clinical guidance was proven to be more effective than the workshop alone. The distribution of nurses' activities between the various domains of nursing, and parameters of patients' life-style within these domains, is described before and after the training. Practical conclusions for community nursing are drawn.

The incidence of chronic diseases has considerably increased in the last few decades, and is still increasing. This development stem from increased life expectancy and thus aging of the population; changes in life style in conjunction with technological developments, urbanization and rising standards of living; and a dramatic increase in environmental risks.

Since the hospitalization rate of chronic patients is quite high, these patients use a high proportion of health care resources, such as hospital beds, medications, manpower and facilities. This major issue accelerated seeking ways to treat chronic patients in the community. One of the more promising approaches which may facilitate this transition to home care for such patients (indeed, any patient), is the self-care approach (Orem, 1985; 1991). This means the patient's active and conscious participation in his or her own treatment together with acceptance of responsibility for the care. The health professional's role becomes, therefore, to consult, console and support, while decisions are made by the well informed patient. Such an attitude may bring chronically ill patients to acquire understanding of their condition, ability to control symptoms, willingness to allocate and recruit resources, adjustment to and acceptance of the restrictions imposed by the disease while maintaining everyday functions, including the social ones (Strauss & Glaser, 1975). However, such a shift from hospital to home care and from being a passive recipient of care to an active partner requires a change of attitude of the patients.

Nursing seems to be in the most advantageous situation to initiate and promote such an attitudinal change. This profession generally has a holistic approach to patients, is able to appreciate their affective needs, possesses the necessary knowledge, and is situated in the front line of patient care, whether primary, secondary or tertiary. Nurses are, therefore, in the best position to implement the self-care approach and to prepare their patients for assuming an active role in their own treatment (Joseph,1980; Orem, 1985; 1991; Connelly, 1987). However, nurses, in particular community nurses, require an adequate preparation for this role. Such preparation, unfortunately, is done too rarely if at all.

The present study aims at filling this gap. It presents two different methods to train community nurses to take care of chronically ill patients, suffering from diabetes mellitus, hypertension or both, in the community. These two disease were selected as a model of chronic diseases because they are treated mainly at home by community-based primary-care health care services; they are prevalent (Foster, 1994; Williams, 1994); they have

serious implication upon morbidity and mortality (Ganda, 1983; Kaplan, 1983); and they also have far reaching implications upon patients' life style, and therefore require compliance with many restrictions of everyday life (Berkman & Syme, 1979).

Further, the study attempts to evaluate the respective effectiveness of each training method. For this purpose the study also offers a new instrument which enables assessment of the nurses' proficiency in implementing the self-care approach. The development and validation of this instrument are described. Finally, the study also includes assessment of the impact of the implementation of the self-care approach by nurses on their patients health status. This part, however, is described elsewhere.

Method

Two groups of community-based nurses were trained to apply the self care model to diabetic and hypertensive patients. The training was done by two different training methods. The effect of the training was assessed by measuring the degree to which the performance of the nurses were consistent with the self care approach. Also measured were the medical status of their chronic patients, and the effect of the change in the nurses' performance upon the patients. This last part is described elsewhere.

Population

All registered nurses working in neighbourhood primary-care clinics in two geographic regions of the country were invited, provided that there were more than one such nurse in the clinic. From the 67 eligible nurses 63 (94%) consented to participate. Five of them dropped out as the training progressed, and an additional three were excluded because their patients failed to comply with the study procedures. The study population was, therefore, 55 nurses, working in 33 clinics. The demographic and professional characteristics of the study population is presented in table 1.

The clinics, rather than the nurses, were divided into three groups matched for the size of the population served by the clinic (Small - less than 4000; large - more than 8000); and for the mode of work (independent nurse unit vs. physician-nurse team). All the nurses within each clinic were assigned to the same training group in order to prevent undue 'contamination'. One of the groups (19 nurses) was a control group (CG). The other two groups attended an intensive workshop, described later, at the end of which they have been

divided into a "Workshop group" (WG) of 17 nurses which did not receive any additional training, and a "Guidance group" (GG) of 19 nurses, which were further guided. Both the researchers and the participants were blind to their group assignment during the workshop.

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Table 1 about here
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Analyses of variance for age, professional seniority and years in primary care did not reveal any difference between the three groups. Also no such differences were revealed in relation to the type of nursing education (diploma, baccalaureate, speciality) and the role in the clinic (head nurse, senior,junior) by χ^2 (table 1).

The educational intervention

a. The workshop

The workshop consisted of six 6-hour biweekly sessions. It was offered 4 times, twice in each geographic region, in order not to disrupt the everyday routine of the clinics. This also enabled supplementation for a missed session. Each study group, therefore, included not more than 9 nurses. The workshop dealt with both theoretical and practical information, the 'what' and the 'how'. It related to chronic ailment in general, and to hypertension and diabetes in particular. The self care model was stressed, and the transfer of responsibility for the treatment to the patient was practised. Also discussed was the life style required by such chronically ill patients, such as regularity of taking medications and tests, diet, rest, activity and exercises, and social activity. The participants learned how to identify individual needs and preferences, how to achieve patient cooperation and compliance, and how to involve the family in the treatment.

Each of the 6 sessions included an hour and a half of lecture by physicians, nurses and other professionals. This was followed by a similar period of time of role playing, in which each participant oscillated between the roles of a nurse and of a patient. "Time off" during the role playing enabled experimenting with alternative representations of the messages to the patient, using different idioms and phrasings. The last hour was a group discussion in which the learned materials and technics were reiterated, summarised and integrated. During this time the participants were invited to bring up their own experiences, and provide feedback to their peers. There were also reading assignments between the sessions.

b. The guidance

A senior and experienced nurse visited each of the GG nurses every fortnight for about an hour during the successive six month (11 times). The visit was during the regular working hours, in the slot of time which is dedicated to chronic patients routine visits to the nurse for check-ups, tests, prescriptions and consultation. Each visit was scheduled beforehand. However, the patient mix and patient load were not arranged specifically for the meeting.

The content of each guidance session was flexible, and related to issues which have been brought up by the random patients. All the life style parameters, however, were eventually covered. In addition, in each session the nurse accounted for her activities in regard to self care since the last session. Also, the nurse was allowed to call the guide at any time in between sessions for consultations; this privilege, however, was never used.

The guidance aimed at promoting professional growth of the nurse. The personal approach in an one-to-one setting enabled relating to the specific needs and capabilities of the nurse in applying the self-care approach, learned earlier in the workshop. The guidance included immediate feedback to the nurse, followed by implementation of alternative approaches with the next patients.

The research instrument

The research instrument, specially developed and validated for this study, is the Observational Checklist for Patient Encounter (OCPE) (Figure 1). The instrument is a matrix of columns and rows, aggregated into layers. The 5 columns depict domains of the nursing process, namely *diagnosing, treatment patient education & follow-up, evaluation* and, finally, *organization of the work & recording* . The three layers describe levels of performance in regard to self care, namely *novice, intermediate* and *proficient* . Each layer is subdivided into 6 rows relating to patient activities in regard to the chronic disease, which affect both the patient's style and quality of life, namely *taking medications, diet, physical activity, rest & relaxation, medical tests* and, finally, *social activity.* ('Life Style parameters'). Each of the three layers includes the same 6 rows.

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Figure 1 about here

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The 5 domains of the nursing process were derived from the 7 domains described by Benner (1984); the other two were secluded in the validation process. The 6 life style

parameters are the universal and deviation-from-health needs (Orem, 1985), and the parameters of coping with chronic disease (Strauss & Glazer, 1975).

The 3 levels of performance are derived from the 5 phases of nursing professional development from novice to expert (Benner, 1984), adapted to the self-care model (Orem,1985; 1991) as follows: The *Novice level* (the uppermost in fig. 1) relates to nurse's behavior in which she dominates the patient encounter. She is the one who raises the issues for discussion, usually very concretely, asks closed questions, instructs the patient in an authoritative way, sometimes even reproaches and preaches, and generally the one that 'knows better what is right for him or her'. Also in this level she is adherent to regulations, lacks flexibility and is unable to adapt the procedure to a specific situation. This level corresponds to Benner's Novice, with some characteristics of the Advanced Beginner level. The *Proficient level* , on the other hand (the lowermost layer), relates to professional behavior in which the nurse transfers the responsibility for the treatment to the patient as much as possible. Her questions are open ended; her responses are consultative rather than instructive; she is responsive to patients initiatives and tries to adapt her recommendations to patients and families wishes, attitudes, beliefs and values. Also, she is aware of the patient's competencies, based on an assessment process. Her professional approach is, therefore, holistic and comprehensive, and she views the patient as a partner rather than an subordinate. This level corresponds to Benner's Expert, although it includes elements from the preceding Proficient level. The intermediate level is indeed in between the two, and corresponds to Benner's Competent level. The attitude is not autocratic any longer and she is open to the patient, yet she has not gone all the way towards him or her, and still holds the sole responsibility for the treatment.

The instrument is designed for the use of a trained observer. Such an observer may classify each activity of the nurse during a patient encounter to one of the 3x5x6 boxes. For example, if the nurse instructs the patient on nutritional issues in an authoritative way, the observer ticks off the box in the *novice* layer, *diet* row and *patient education* column. If the activity at the moment is measuring blood pressure, than the tick off is in the *follow-up* column and *tests* row. The layer in this case depends upon the context: who initiated it, for what purpose and in which disposition. An 'activity' could be a statement, conversation, question, taking blood or urine samples, physical examination, treatment of skin lesions, recording, referring to a physician, laboratory procedure and the like. All verbal exchange which relates to one issue is defined as one activity. There is

no limit to the number of ticks, but each patient encounter requires a new sheet.

Each tick gains a value of 1 if it is in the *novice* layer, 2 if it is in the *intermediate* layer, and 3 if it is in the *proficient* layer, regardless of the column and the row. The sum of the multiplications divided by the number of activities (i.e.,number of tick offs), provides a numerical value which represents the nurse's working mode in regard to self-care. The higher the score is, the greater is the transfer of responsibility to the patient, and *vice versa*. This score is, actually, the *self-care level of* performance ("self-care performance"). The instrument enables the computation of a score for the entire patient encounter as well as subscores for each domain, each life style parameter and each proficiency level. In addition, the number of ticks, without any multiplication, reveal the frequencies of the various nurse's activities. The Observational Checklist for Patient Encounter (OCPE), therefore, may provide information on many aspects of the nurse's work. Not only the degree of implementation of self-care concepts are illuminated, but also what contents she is emphasizing, what parts of the nursing process engages her the most, and in relation to which areas she is more open to the patient than in others.

The attribution of each activity to both nursing domain and life style parameter is obvious and almost objective, because the range of each variable is clearly differentiated from any other one. It therefore requires just a little practice on the part of the observer. Determining the level of performance, on the other hand, requires judgment, and therefore it is much more subjective and requires intensive training.

Validation of the instrument

a. Content validation

The 7 domains of the nursing process (Benner, 1984) were scrutinized by eight leaders of the nursing profession in the country, half from the university and the other half directors of services. All 8 agreed independently that only 5 of the 7 are relevant to the nursing reality in primary clinics in the country. Therefore two of Benner's domains, namely *helping role* and *management under changing conditions* were excluded.

In the next stage two detailed case studies were developed, describing typical encounters between primary care nurse and diabetic and hypertensive patients respectively. Ten senior community nurses were requested to identify the domains encompassed in the case studies and to name them. The nurses were not aware of Benner's 7 nursing process

domains, and could identify any number of domains. Nine out of the 10 nurses agreed on the same 5 domains which were selected by the leaders, and used approximately the same nomenclature in defining them. The 10th nurse identified only 4 domains, and used slightly different descriptors.

The six life style parameters are an exhaustive list of universal needs and deviation-from-health needs (Orem, 1985; Strauss & Glazer, 1975). Because of the comprehensiveness of the list, no further content validation was required.

The three performance levels are derived from collapsing Benner's (1984) 5 phases of development from novice to expert. These has been done because observers in the pilot study phase demonstrated difficulty in identifying the intermediate levels. The reduction of the number of the levels to three together with idiosyncratic definition of each, were followed by a very high interrater reliability described thereafter.

2. Construct validation

Two senior, experienced and highly reputed primary care nurses, both with graduate education, were recruited as observers. They were trained for about a month to use the instrument, and observed, together with the researcher, tens of community based nurses at work. When satisfactory command of the instrument was achieved, 15 formal observations of nurses, not included later in the study, were performed. Both observed the nurse simultaneously, but used the OCPE independently. The correlation between the two at this stage was .97.

In the next stage, each of the observers observed another 10 nurses independently in different days. The consistency between the first observer and the second was .93 to .98. Further, one additional observation of the same 10 nurses by each of the observers was done two month later, again on different days. The correlation between the early and the late observations of the same observer was .97 for one and .99 for the other. The correlations between the two observers was again between .92 and .98. This established both the test-retest and the interrater reliability of the instrument.

The final stage in the validation process was completion of a shortened version of the OCPE by the supervisors of each of the 25 nurses who were observed in the previous stages. The short version included the columns and the layers, but not the life style

parameters (the rows). The supervisors assessed the nurses on the basis of a long standing acquaintance without additional observation. This procedure precluded the possibility that the observed nurse is acting for the sake of the observers. The correlation between the supervisors' and the observers' assessments was .96 and .98. However, there was a consistent gap between the supervisors and the observers assessments (t=2.48 and 3.80), due to invariably higher scores given by the supervisors. This, however, does not decrease the validity of the instrument; indeed, it was expected, because the supervisors were not trained to use the instrument on the one hand, and wished, consciously or unconsciously, to praise 'their' nurses in the eyes of strangers on the other.

This concluded the validation process. Obviously, there is no point in measuring the internal reliability of the instrument, since each component in it measures different things. The OCPE was proven to be reliable, stable and both content and construct valid.

Procedure

Observations of each of the nurse subjects were performed by one the same two trained observers before the commencement of the study, immediately after the workshop, and at the end, after the 6 months of guidance. Each series of observations required about a month. The guidance did not start before the data at midterm were collected.

The data analysis included computation of frequency of activities on each of the 5 domains, 6 life style parameters and 3 levels, as well as self-care level for each. The three study groups were compared to each other, and final scores of each were compared to the pretest and midterm scores.

At the same periods of time 5 randomly selected chronic patients of each nurse were assessed on a variety of measures, in order to evaluate the effect of the nurses mode of work and self-care level on the patients' medical, emotional and social status. This part of the study is described elsewhere.

Results

The nurses' performance at the commencement of the study in all three groups was on quite a low level as far as self care is considered, ranging from 1.19±.31 to 1.60±.46 for the various nursing domains (table 2) and from 1.01±.1 to 1.54±.55 for the various life

style parameters (table 3). No significant variance was detected between the three groups by multivariate analyses of variance (MANOVA) over the 5 nursing domains (F=.89), and over the 6 life style parameters (F=.65). Furthermore, ANOVA's for each of the 5 domains and the 6 life style parameters also revealed no differences between the groups (F=.22 to 1.44) (tables 2 & 3). However, all the nurses performed on a somewhat higher level in regard to *diagnosing, treating* and *patient education & follow-up* domains than on the other two, and on *taking medications, diet* and *tests* than on the other three life style parameters (Tables 2 & 3).

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Tables 2 & 3 about here
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A profound change of the level of nursing performance occurred after the workshop, as it is shown by multivariate analyses of covariance (MANCOVA's), the pretest scores being the covariate. (F=8.26 and 13.35 for nursing process domains and life style parameters respectively). ANCOVA analyses for each of the variables show significant changes of the level of performance for all 11 variables (Tables 2 & 3). The largest change was in the *patient education & follow-up* domain. Also may be noted a remarkable increase in the frequency of some activities, *such as treatment, patient education & follow-up* among the nursing domains, and *diet, physical activity, rest* and *social activity* among the life style parameters. No such increase was detected in relation to *evaluation, organization & recording, taking medications,* and *tests* (Tables 2 & 3).

However, much greater changes have been observed at the post-test phase, after both training interventions. Most significant differences between the three groups were disclosed by multivariate analyses of covariance (MANCOVA's), the pretest scores being the covariate (F=5.96 and 5.47 for nursing domains and life style parameters respectively, $p<.001$ for both) . Same is true for each and every domain and parameter. ANCOVA's ranged from F=10.88 to 26.05 for nursing domains (table 2), and from F=9.26 to 25.32 for life style parameters (table 3) (all $p<.001$). The level of performance was invariably the highest in the GG, intermediate in WG and the lowest in CG (tables 2 &3, figures 2 &3). Contrast analysis showed significant differences between GG and each of the other two groups on all 5 nursing domains and 5 of the 6 life style parameters, excluding only *tests* parameter (table 4).

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Figures 2 & 3 and Table 4 about here
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The change was by and large uniform in regard to all 5 nursing domains (table 2, figure 2), with some predilection of *evaluation* and *organization & recording*. However, this is not so in regard to the life style parameters, in which a dramatic rise was observed in regard to the so called "psychosocial parameters", namely *physical activity, rest* and *social activity*. (table 3, figure 3).

The professional and demographic background of the nurses did have a significant predictive value at the pretest stage. Among these background variables, the most meaningful was *education* . Both correlational analysis (Table 5) and multiple regression analyses (Table 4) reveal that nurses with graduate education were significantly more self care oriented in regard to all 5 nursing process domains, and all life style variables except for the psychosocial one. On the other hand, *age* and *seniority* were negative predictors of some activities, which means that older nurses, with extensive experience, were less prone than the younger once to practice self care approach. (Tables 4 & 5). Role in the clinic did not have any influence upon the performance level.

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Tables 5 & 6 about here
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At the post-test stage, however, no differences were detected between nurses differentiated by background variables. The only predictor of their post interventional professional behavior was, therefore, the training; in other words, the predictive variable was the study group with which the nurse was affiliated.

Discussion

The data at the pretest phase revealed a reprehensible profile of nursing at the primary care level, and leave no doubt about the authoritative and formal nature of their work. As far as self care is concerned, nurses are novices, in spite of long experience and seniority in nursing and even in primary care nursing; indeed, seniority and length of experience, as well as age, were found to be negative predictors of self care approach. This corresponds with Benner's (1984) conclusion that it is not the length of stay in clinical environment that enhances proficiency and expertise, but rather experience in a specific activity. Moreover, the frequencies of activities indicate that nurses spend most of there time on diagnosis and treatment procedures, and within those domains most of the attention is drawn to performing tests, relating to medications and prescribing diets. They pay much

less attention to assessment of the treatment, patient education, recording and organizing their own work, and show only negligible concern for parameters such as physical and social activities of the patients, rest, sleep and relaxation. These themes are raised in average only once in every three to four patient's visits to the clinic, as compared to almost four referencing to medications and tests per visit. It is hard to judge whether this situation is characteristic to primary care nursing in the entire Western World, or is it a local problem. The information on this respect is scarce. Anecdotal information, however, point to the generality of the issue.

This state of events may be attributed to several reasons. First, there are clear regulations and standards relating to medications, tests and diet, but no such standards for personal and social matters. Working according to regulations is one of the features of novice and beginner levels, as may be remembered (Benner, 1984). Second, in relating to personal issues, the nurse may come across emotionally loaded, and therefore threatening, issues such as constraints caused by the chronic disease upon social life, sexuality, work and family affairs; indeed, the entire scope of the interrelations between chronic disease and life. Third, nurses may be imitating physicians, the formal leaders of the health care team, who typically prefer to relate to biomedical issues rather than to psychosocial ones. Fourth, much less time is needed to discuss biomedical issues of medications, diet and tests than psychosocial and personal issues. Work under pressure and insufficient resources is always directed toward the more economical way out. Finally, the physical outlay of primary care clinics does not always provide the intimacy and privacy which discussion of personal matters requires, at least in this country. On the other hand, medications, tests and diet are major issues in the contemporary discourse in the Western culture (Anderson & McFarlane, 1988). Perhaps nursing simply complies with the public agenda.

The results hint, however, to the possibility that all these reasons are secondary to the ways of professional socialization in undergraduate nursing schools, especially, but not exclusively, the older style diploma schools. During this critical period of schooling, when professional attitudes are shaped and values acquired, the biomedical issues and manual skills dominate the educational scene by far. Moreover, the exposure of nursing students to acute care hospital wards and units exceeds dramatically their experience in primary care settings. Indeed, the results indicate that age and seniority are negative predictors of self care approach, while graduate education is the only strong positive predictor of implementation of self care approach.

Yet, the results indicate a slow movement towards the self care approach even among the control group nurses. This change is small and insignificant, but consistent. It may reflect the slow motion towards patient-orientation of the entire health care system, caring more than before for the patients' satisfaction, appreciation and affection. This may be driven by the growing emphasis on individual rights, including patient's rights, in the Western culture on the one hand, and by the ever tougher competition over patients' preferences on the other. Nevertheless, the results point out clearly that one cannot and should not rely upon this slow change, which is obviously insufficient.

The results of the present study unequivocally indicate that even a relatively brief training of community nurses can produce a major change. A 36-hour workshop, both with and without further guidance, changed the nurses ability to apply self-care approach from novice to at least intermediary level, and in some respects even more. At the same time the allocation of the nurses' time for the various activities has also changed, as can be judged by their frequencies. In other words, after the training the nurses performed with much more involvement of the patient in his or her own treatment, and also paid more attention to the social and physical activities, diet and rest of the patients. The number of references to these psychosocial parameters grew 3 to 8 fold. This increment may stem from a growing control of the patient over the agenda. This change is congruent with the self care model, which requires holistic approach in which the patient's problem is viewed in a wide biopsychosocial context. It seems that the nurses learned how to become a resource to the patient rather than an authority (Fitzgerald, 1980; Benner & Wrubel, 1989).

However, the final results indicate unequivocally that the guidance group had made much greater progress than the workshop group in all respects. This cannot be attributed merely to the additional 10 hours of training, since the change in this group is much larger than the proportional addition of training time. It must be ascribed, therefore, to an added value of the training method itself. Such an added value of clinical guidance supports the feeling, which has not been proven yet, that personal guidance is a most powerful teaching-learning method (Bloom 1984; Moos, 1985; Palsson *et al.*, 1994). It is especially effective when it is on a one-to-one basis (Knollmueller, 1988). Second, personal guidance is a mode of learning which is best synchronized with the real world (Lahif, 1990). It is "here and now" rather than "there and then". It therefore presents the highest possible level of simulation, which requires supreme personal involvement and high

professionalism. Actually, all learning theories agree on the effectiveness of such a learning mode: the newly acquired knowledge is directly interwoven into a rich matrix of readily available context (Norman, 1988); it is, in a sense, a discovery learning (Bruner, 1963), and it utilizes the clinical context as an advanced organizer of the acquired knowledge (Ausabel, 1969). Actually, it takes the problem-based learning beyond the classroom and into the real world, while preserving the advantages of the method (Schmidt *et al.*, 1987). Clinical guidance, in a matter of fact, is the real "on-job training".

It worth mentioning that no differences were detected between the three groups in the frequencies of the various activities at the post-test level, except for physical and social activity parameters. In other words, the frequency of some activities has increased, as was discussed earlier, but this increase is uniform across groups. One can, perhaps, speculate that the workshop had produced awareness to these neglected aspects of nursing, but the guidance group was better able to relate to them in a self care context. The superiority of the guidance group on the psychosocial parameters, however, has a far reaching significance in the view of the objectives of self care model. Nevertheless, a word of caveat is in order. The post intervention data collection was done a short time after the termination of the guidance. It is still to be proven whether or not the substantial change is sustained over time.

The effectiveness of guidance could have been, therefore, expected. Less expected is the effectiveness of the workshop. This more common and more economical mode of learning succeeded in creating a considerable change. Moreover, the change was sustained almost unimpaired for at least 6 months without any boosters. This effectiveness may be attributed to the small size of the learning group (Cohen, 1994); to the presentation of real life experiences for criticism by peers (Webb, 1991); to the problem-based structure of the learning (Barrows, 1985; Schmidt, 1989); and to the multidirectional communication during the encounter in a non-confrontational atmosphere (Schmuck & Schmuck, 1971). Pfieffer & Jones (1974) described four stages in the small group problem-based learning, as follow: *Experiencing* , in which simulated activity serves as a trigger; *publishing*, in which the messages drawn from the experiences are cognitively examined and organized by the individual; *processing*, in which interaction with other participants enables formulation of these messages; *generalization*, in which general concepts emerge from the messages; and, finally, *applying* the learned principle to new situations.

The generalization issue, however, is recently under attack by cognitive psychologists (*i.e.*, Norman & Regher, 1995), which deny the existence of a generic problem-solving skill, and therefore do not acknowledge transfer, or generalization, from one kind of problems to another. This reasoning is, perhaps, another clue to the superiority of the guidance over the workshop, namely, the guidance provided opportunities to solve exactly the kind of problems which the individual nurse encounters in her everyday work, while the workshop provides just examples, both pertinent and less pertinent to the individual nurse, from which she is expected to draw general conclusions.

The study design does not permit conclusions on the effectiveness of guidance without a preceding workshop. One may guess that in such a case the guidance should be prolonged in order to achieve the same results, although probably for less than the 36 hours. This question, however, is theoretical more than practical, in view of the relative cost of the two methods.

The results do not reveal a differential effect of the training upon nurses from different backgrounds. Neither age and seniority nor education could predict the nurses' response to the intervention, contrary to the obvious effect of these variables on the nurses' performance before the training. This finding suggests that the authoritative, biomedically oriented approach of primary care nurses stems from lack of awareness to and regard fo the self-care concept in nursing schools of all kinds, and not to any individua characteristics of the nurses themselves.

The present study also offers a new valid and reliable observational instrument, which enables assessment of nurse performance. Both the scientific community and the clinica supervisors felt and expressed a need in such an instrument (Nolan & Grant, 1993). It wa lacking especially in relation to primary care, where there is naturally less on-going supervision. The instrument, however, is not self evident, and requires training for optimal use. This is its major disadvantage. Only further utilization of this instrument can establish its usefulness.

The main conclusions that may be drawn from this study are, first, the intense need i training nurses, and especially primary care ones, for more patient-orientation and self-care. Second, the feasibility and usefulness of relatively simple training methods. At leas a workshop of the kind described here may be considered, being a rather inexpensive an

readily available mode of training, yet much more effective than the traditional, knowledge oriented, on-job training (Cox & Baker, 1981). However, even the more expensive guidance method, requires only one expert to train tens of primary care nurses. One may speculate that the cost of such guidance is negligible in comparison to the potential savings by strengthening home care and reducing avoidable hospitalizations. The desire to introduce routine clinical guidance in community nursing, therefore, is not unrealistic (Knollmuller, 1988).

The crucial issue is, however, whether or not the self-care model makes any difference in the patient's status. This part of the study is presented elsewhere and will not be discussed here, apart from stating that a major differences have been detected.

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Table 1: Demographic and professional characteristics of the study population

Variable			Entire population (N=55)	Guidance group (N=19)	Workshop group (N=17)	Control group (N=19)	Variance among groups
Age		mean	44.73	45.89	44.00	42.21	F= .36
		SD	7.4	4.9	8.7	8.3	
Seniority (years)		mean	23.11	24.79	22.00	22.42	F= .66
		SD	7.9	5.4	10.2	7.9	
Community Experience (years)		mean	17.09	16.74	15.65	18.74	F= 1.04
		SD	1.36	5.8	7.2	6.6	
Education:		RN's	32 (58.2%)	10 (52.6%)	11 (64.7%)	11 (57.9%)	χ^2= .54
		BN's*	22 (41.8%)	9 (47.4%)	6 (35.6%)	8 (42.1%)	
Role:	Head nurse		22 (40.0%)	8 (42.1%)	5 (29.4%)	9 (47.4%)	χ^2=1.95
	Team nurse**		23 (41.8%)	7 (36.8%)	8 (47.1%)	8 (42.1%)	
	Nurse**		10 (18.2%)	4 (21.1%)	4 (23.5%)	2 (10.5%)	

All variance values non significant

* Including nurse specialists

** "Team nurse" - a nurse who is working with a physician in a physician/nurse team m[illegible]

"Nurse" - a nurse who is working in a nursing unit in the clinic without affiliation to a particular physician

Table 2: Self-care level and frequencies of nurses' activities before and after the intervention

(Means, standard deviations and variance)

Domain		Guidance group			Workshop group			Control group		Variance before / after workshop	Variance among groups at post test
		pre	after w.s[1]	post	pre	after w.s[1]	post	pre	post	ANOVA F	
Self-care level of performance:											
Diagnosis	Mean	1.51	1.82	2.25	1.48	1.78	1.73	1.53	1.60	18.46***	15.90**
	SD	.40	.30	.38	.50	.39	.40	.45	.44		
Treatment	Mean	1.42	1.79	2.23	1.36	1.91	1.83	1.50	1.53	15.81***	26.05**
	SD	.45	.40	.36	.50	.40	.37	.44	.52		
Patient education & follow-up	Mean	1.50	1.85	2.25	1.47	1.93	1.85	1.54	1.64	16.09***	22.30**
	SD	.45	.33	.38	.50	.35	.35	.44	.47		
Evaluation	Mean	1.19	1.62	2.07	1.33	1.77	1.70	1.47	1.39	9.02**	22.02**
	SD	.31	.48	.38	.49	.42	.48	.50	.50		
Organization	Mean	1.31	1.63	2.08	1.28	1.74	1.63	1.49	1.60	10.17**	10.88*
	SD	.39	.42	.43	.41	.45	.52	.50	.52		
Frequency of activities:											
Diagnosis	Mean	3.95	4.14	4.58	3.23	4.11	4.18	3.37	3.73	9.40*	1.97
	SD	1.27	1.34	1.21	1.09	1.17	1.51	.83	.93		
Treatment	Mean	2.74	3.58	3.90	2.59	3.44	3.30	2.58	3.21	15.56**	1.97
	SD	1.24	.94	1.10	.87	.98	.92	1.22	.79		
Patient education & follow-up	Mean	3.42	4.19	4.42	2.71	4.04	3.82	2.89	3.47	17.94**	2.90
	SD	1.61	1.21	1.02	1.10	1.08	1.01	1.24	1.26		
Evaluation	Mean	2.16	2.38	3.10	1.76	2.19	2.59	1.79	1.32	1.67	1.12
	SD	1.57	1.19	1.37	1.60	1.10	1.46	1.13	1.29		
Organization	Mean	2.26	2.28	3.26	1.94	2.37	2.35	2.21	2.42	.50	1.38
	SD	1.19	1.24	1.45	1.34	1.22	1.77	.92	.30		

* p< 05, ** p< 01, *** p< 001

1 - W.S. = workshhop. No measurment was done after the workshop in the control group.

Table 3: Self-care level and frequencies of life style parameters before and after the intervention

(Means, standard deviations and variance)

Domain		Guidance group			Workshop group			Control group		Variance: before / after workshop	Variance: among groups at post test
		pre	after w.s[1]	post	pre	after w.s[1]	post	pre	post	ANOVA F	
Self-care level of performance:											
Taking medications	Mean	1.40	1.76	2.16	1.40	1.88	1.81	1.48	1.62	10.32**	9.81***
	SD	.43	.55	.61	.55	.59	.51	.59	.60		
Diet	Mean	1.31	1.75	2.29	1.25	1.88	1.78	1.49	1.47	15.91***	16.3***
	SD	.37	.57	.47	.36	.54	.64	.54	.51		
Physical activity	Mean	1.08	1.36	2.08	1.07	1.42	1.29	1.10	1.20	29.42***	25.32***
	SD	.24	.38	.59	.28	.48	.46	.31	.44		
Rest & relaxation	Mean	1.00	1.15	1.58	1.00	1.18	1.08	1.04	1.08	11.68**	9.26***
	SD	.00	.27	.63	.00	.36	.20	.17	.34		
Tests	Mean	1.55	2.07	2.33	1.53	1.98	2.10	1.55	1.62	4.67*	16.19***
	SD	.50	.50	.50	.62	.59	.52	.57	.57		
Social activity	Mean	1.04	1.13	1.75	1.00	1.29	1.16	1.06	1.08	21.21***	13.75***
	SD	.19	.41	.62	.00	.45	.44	.18	.34		
Frequency of activities:											
Taking medications	Mean	3.68	4.12	4.47	4.18	4.12	4.12	3.53	4.32	2.49*	.39
	SD	1.49	1.11	.96	2.04	1.32	1.05	1.77	.82		
Diet	Mean	3.69	4.11	4.53	3.06	4.41	4.12	3.53	3.89	2.18	1.15
	SD	1.24	.94	1.10	.87	.94	.92	1.22	.79		
Physical activity	Mean	1.05	1.84	3.63	.58	1.53	1.65	.53	1.16	17.53***	6.52*
	SD	1.39	1.68	1.70	1.33	1.66	2.29	1.07	1.92		
Rest & relaxation	Mean	.21	.74	1.63	.60	.94	.65	.37	.37	5.20*	2.42
	SD	.63	1.10	1.98	.24	1.30	1.22	.89	.95		
Tests	Mean	4.37	4.21	4.26	3.70	3.88	4.41	3.79	4.21	.01	.69
	SD	1.01	1.18	1.37	1.16	1.54	1.00	1.78	1.40		
Social activity	Mean	.58	.95	2.42	0.00	1.12	1.23	.26	.32	9.72**	5.90*
	SD	.13	1.47	2.04	.00	1.73	1.85	.81	.82		

* p< .05 ** p< .01 *** p< .001

1 - W.S. = workshhop. No measurment was done after the workshop in the control group

Table 4: Self-care level of nursing domains and of life style parameters. Contrast analysis between groups.

(t-tests of means)

	Between GG & CG	Between GG & WG	Between WG & CG
Nursing domains			
Diagnosis	5.68***	4.00**	1.52
Treatment	7.44***	3.52**	3.70**
Patient educ. & follow-up	6.92***	3.98***	2.75**
Evaluation	6.50***	3.11**	3.20**
Organization & recording	4.73***	3.30**	1.27
Taking medications	3.96***	2.47*	1.38
Diet	5.84***	3.00**	2.68*
Physical activity	6.85***	5.36***	1.31
Rest & relaxation	4.11***	3.49**	.51
Tests	5.87***	1.44	4.26***
Social activity	5.01***	4.07***	.89

* p< .05
** p< .01
*** p< .001

Table 5: Predictors of self care performance level at the pre-test phase

(multiple regression analyses)

Variable	Predictor	step to enter	R2	beta	F of regression equation
		Nursing process domains			
Diagnosis	Education	2	.20	.43***	
	Seniority	3	.29	-.29*	10.52***
Treatment	Education	1	.15	.39**	9.28**
Patient education & follow-up	Age	1	.10	-.31*	
	Education	2	.18	.28*	
	Role	3	.25	-.29*	5.69**
Evaluation	Education	1	.15	.39**	9.28**
Organization	Education	1	.10	.32*	
	Age	2	.18	-.27*	5.56**
		Life style parameters			
Taking medications	Education	1	.20	.45***	13.24***
Diet	Age	1	.15	-.38**	
	Education	2	.23	.29*	7.85***
Physical activity	Age	1	.09	-.29*	5.02*
Rest & relaxation	-				
Tests	Education	1	.10	.31*	
	Age	2	.17	-.26*	5.18**
Social activity	-				

* $p < .05$
** $p < .01$
*** $p < .001$

Table 6: Correlations between self care performance level and nurses' background variables at the pre-test phase

Variable	Primary care Age	Seniority	experience	Educ.	Role
	(Pearson product Moment)		(Spearman's)		
Nursing process domains					
Diagnosis	-.29*	-.32**	-.27*	.45***	.08
Treatment	-.19*	-.06	-.11	.39**	.03
Patient educ. & follow-up	-.31*	-.20*	-.16	.30*	-.18
Evaluation	-.25*	-.23*	-.21*	.39**	.05
Organization	-.29*	-.15*	-.22*	.32*	.14
Life style parameters					
Taking medications	-.24*	.11	-.12	.45***	-.16
Diet	-.38***	-.23*	-.22*	.32**	-.05
Physical activity	-.29*	-.20*	-.06	.16	.08
Rest & relaxation	.02	.07	.12	-.12	-.22*
Tests	-.28*	-.28*	-.29*	.31**	.04
Social activity	-.23*	-.23*	-.17	.19*	.12

* $p < .05$
** $p < .01$
*** $p < .001$

Figure 1: **Observational list for patient encounter**

Name of observer _____
Name of the nurse _____
Date _____ Clinic _____
Diagnosis: Diabetes / Hypertension

Level of performance regarding self-care / Domain of nursing process: Life style parameters		Diagnosing	Treatment	Patient education & follow-up	Assessment of treatment	Recording & organization
Level I: Novice/ advanced beginner No previous experience. Needs regulations and protocols. No holistic perception of the situation. Self-care approach is not applied.	Medications					
	Diet					
	Physical activity					
	Rest, relaxation					
	Tests					
	Social activity					
Level II: Intermediate Some previous experience. Still inflexible but uses judgment and planning. Self-care approach is partially applied.	Medications					
	Diet					
	Physical activity					
	Rest, relaxation					
	Tests					
	Social activity					
Level III: Proficient / expert Competence based upon rich previous experience. Proficient. Holistic perception of the situation. Fast identification of the major problems. Self-care approach is applied.	Medications					
	Diet					
	Physical activity					
	Rest, relaxation					
	Tests					
	Social activity					

Figure 2: Level of performance regarding self-care and frequencies of nursing process domains before and after the intervention

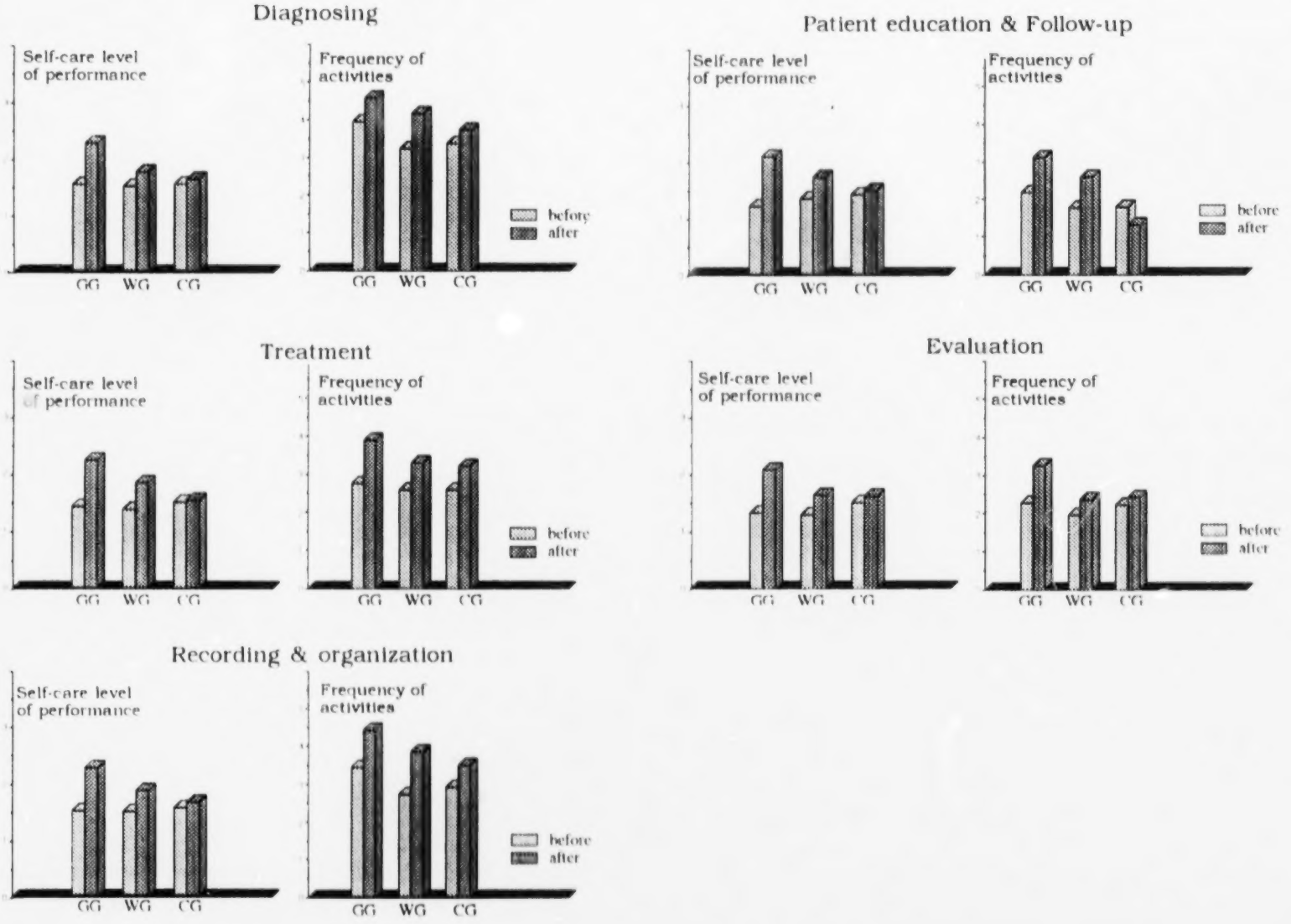


Figure 3: Level of performance regarding self-care and frequencies of life style parameters before and after the intervention

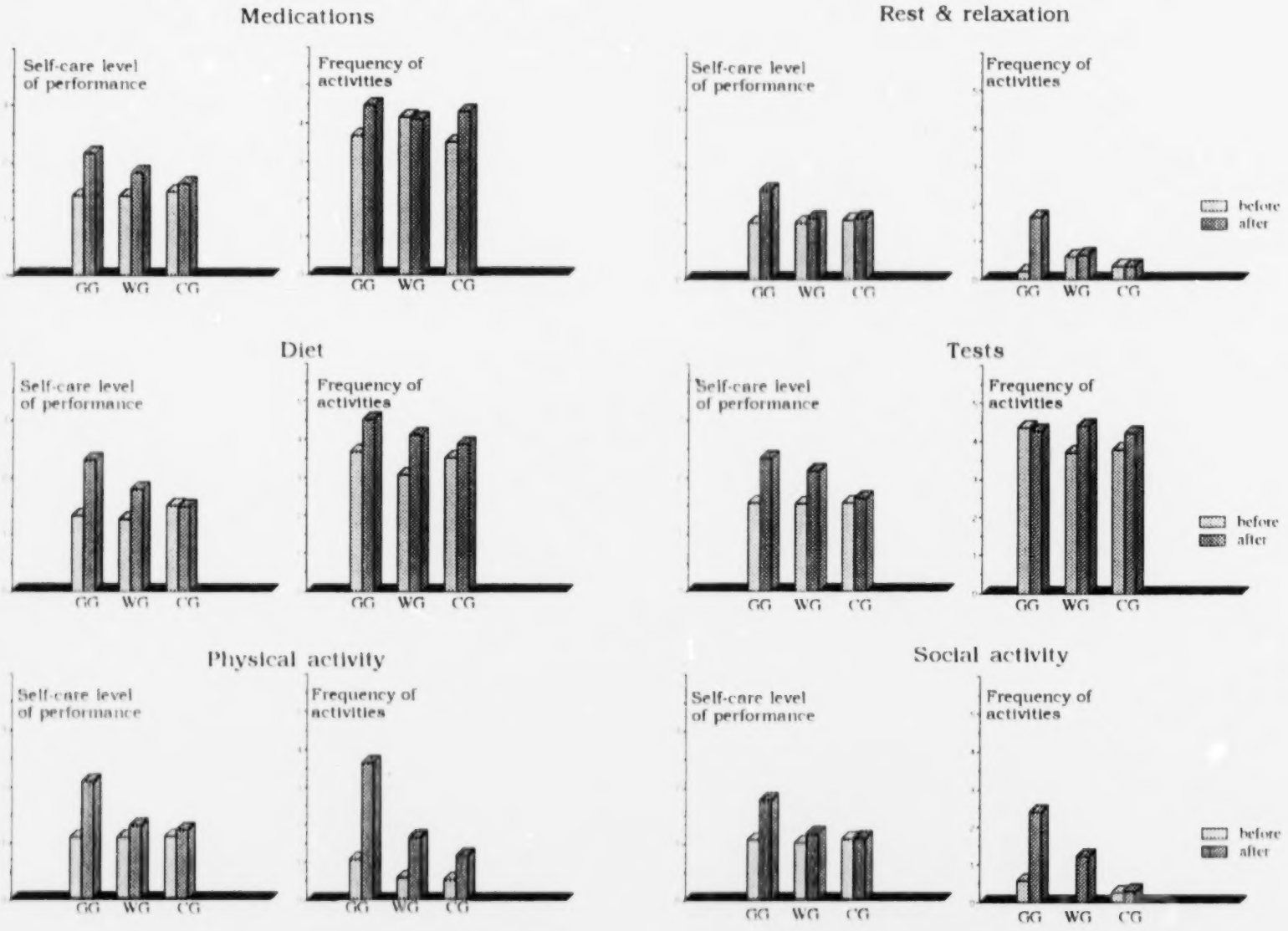
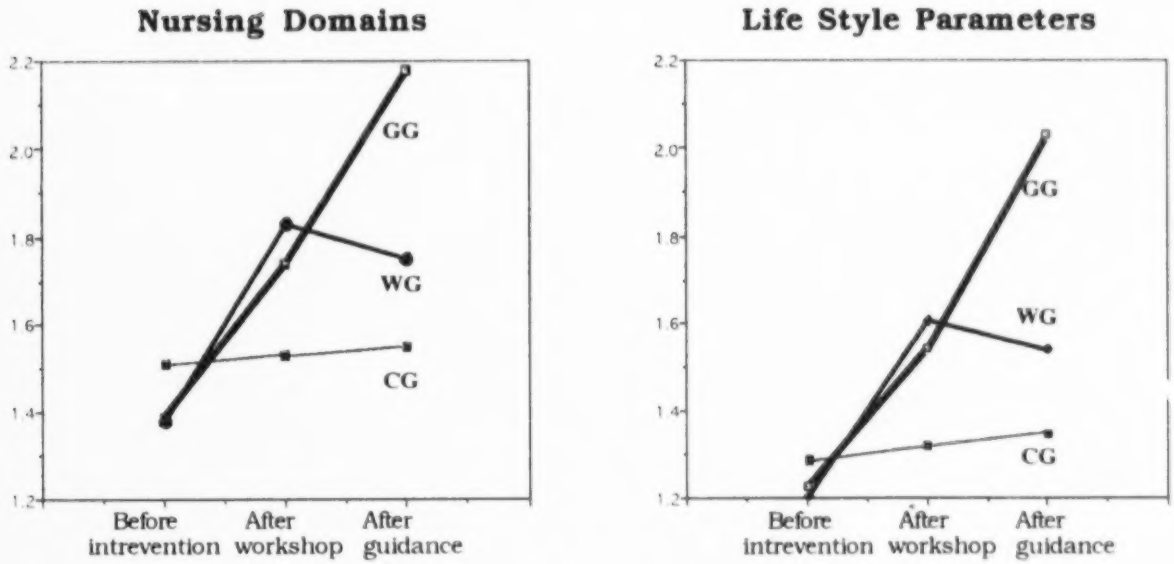


Figure 4: Self-care level of nursing activities* along the study



* Mean of all 5 nursing domains and 6 life style parameters